

## KS-19245, LISTS 13, 24, AND 26 TELEPHONE ANSWERING SETS MAINTENANCE

### 1. GENERAL

1.01 This section contains information for the KS-19245, Lists 13 (MD), 24 (MD) (Fig. 1), and 26 (Fig. 2) telephone answering set. For additional information on identification, installation, connections, and operation, refer to Section 514-155-100.

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes.

- Add List 26 telephone answering set
- Show List 24 telephone answering set MD.

1.03 The KS-19245, Lists 13 (MD), 24 (MD), and 26 telephone answering sets have been designed to facilitate maintenance by the use of plug-in assemblies. Field replacement of component parts of these plug-in assemblies is not recommended, since readjustments requiring special equipment and procedures will usually be required. Table A identifies components that are replaceable in the field.

### 2. MAINTENANCE PROCEDURE

2.01 *When trouble is encountered, perform the following preliminary inspection.*

- (1) Check that the power cord is plugged into an

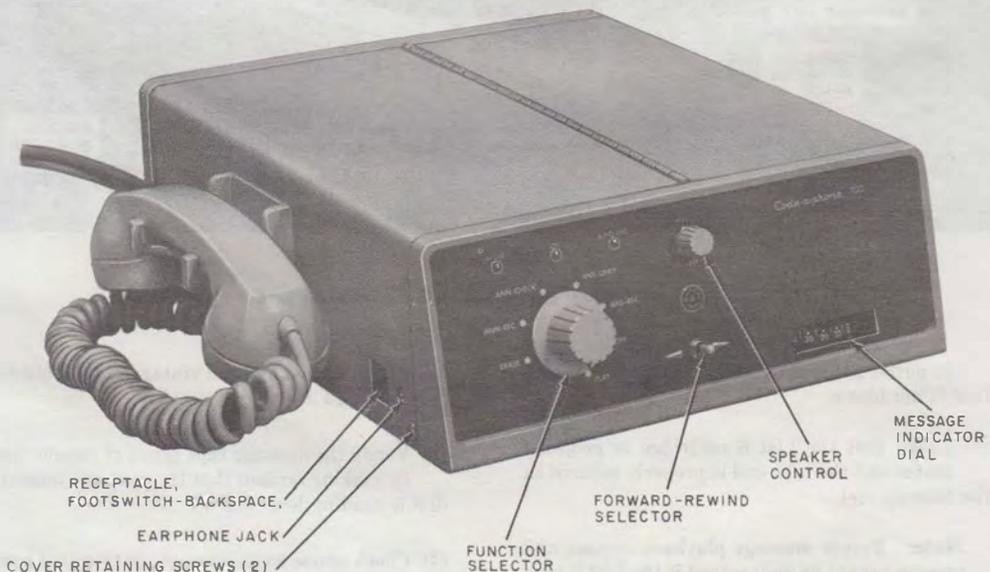


Fig. 1—KS-19245, Lists 13 (MD) and 24 (MD) Telephone Answering Set

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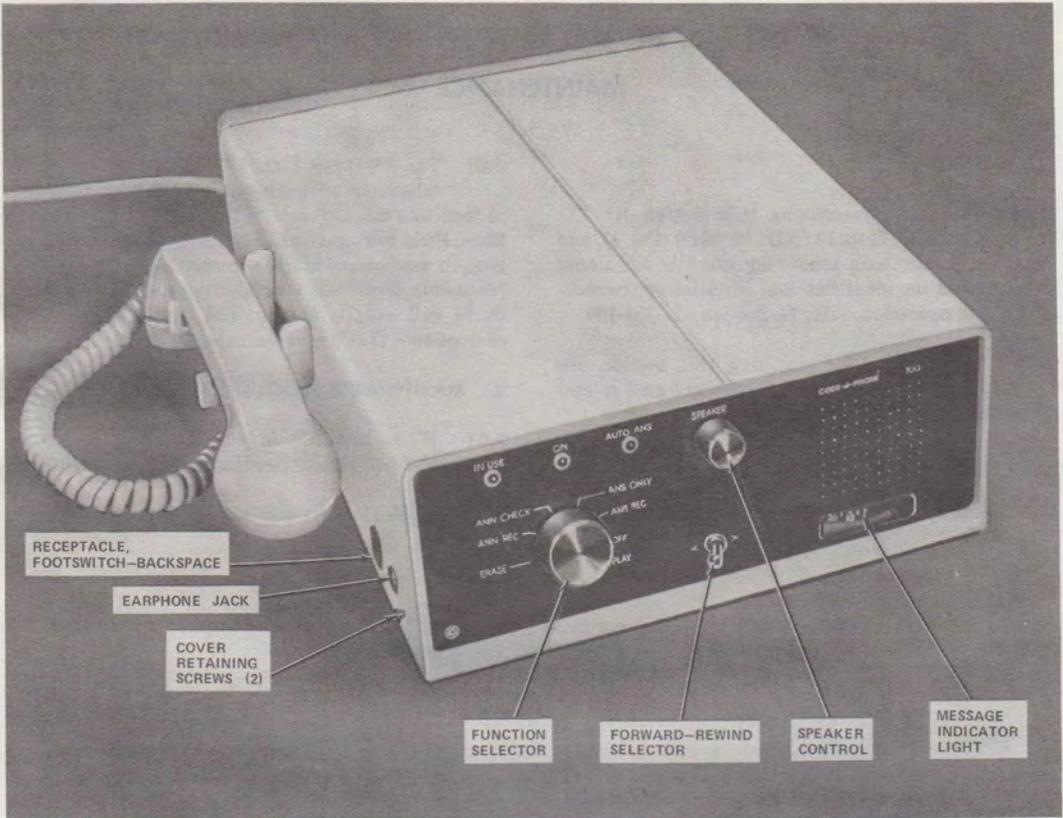


Fig. 2—KS-19245, List 26 Telephone Answering Set

ac outlet not controlled by a switch or that a fuse is not blown.

(2) Check that the List 6 cartridge is properly seated and the tape end is properly secured in the take-up reel.

**Note:** Proper message playback volume and erasure cannot be guaranteed if the List 6 tape cartridge is moved from a List 1 answering set to a List 13 (MD), 24 (MD), or 26 answering set (or vice versa). This incompatibility does not exist between the Lists 13 (MD), 24 (MD), and 26 answering sets. If a tape cartridge is to be moved between different vintage sets, it must

be fully erased on both vintage sets before new recordings are made.

- (3) Verify the message tape is not at the end limit by making certain that the message indicator dial is reading less than 80.
- (4) Check phone connection at set terminal board for type of service.
- (5) Remove cover retaining screws from left side.
- (6) Lift left side cover and remove circuit board retainer.

TABLE A

## REPLACEABLE COMPONENTS

ITEM	ORDERING INFORMATION			
	L1	L13	L24	L26
Adapter, KS-19245L25	No	No	Yes	Yes
Amplifier, KS-19245L4	Yes	No	No	No
Amplifier, KS-19245L5	Yes	No	No	No
Backspace Unit, KS-19245L12	Yes	Yes	Yes	Yes
Base Pan, KS-19245L23	No	Yes	Yes	Yes
Cartridge, KS-19245L6	Yes	Yes	Yes	Yes
Control Knob, B-560078* (Function Selector)	No	Yes	Yes	No
Control Knob, B-560081* (Speaker Control)	No	Yes	Yes	No
Earphones (Accessory), KS-19245L9	Yes	Yes	Yes	Yes
Footswitch, KS-19245L8	Yes	Yes	Yes	Yes
Fuse (F1), 3AG1†	Yes	Yes	Yes	Yes
Handset (with cord), G5KR-61‡	No	Yes	Yes	Yes
Manual, KS-19245L18	No	Yes	Yes	Yes
Mounting Cord, D4BU	No	Yes	Yes	Yes
Mounting Cord, D6BU	No	No	Yes	Yes
PC Card A4, KS-19245L15	No	Yes	Yes	Yes
PC Card A5, KS-19245L16	No	Yes	Yes	Yes
PC Card A6, KS-19245L17	No	Yes	Yes	Yes
Power Cord, KS-19245L11	Yes	No	No	No
Power Cord, KS-19245L14	No	Yes	Yes	No
Power Cord, KS-19245L27	No	No	No	Yes
Power Supply Assembly, KS-19245L19	No	Yes§	Yes§	Yes§
Recorder, KS-19245L2	Yes	No	No	No
Recorder, KS-19245L3	Yes	No	No	No
Tape Deck, KS-19245L22	No	Yes¶	Yes	Yes

\* Order as "B-Part of KS-19245, List 13 Telephone Answering Set."

† Obtain locally.

‡ May be obtained from Audio Sears, 1801-02 Handset.

§ Supplied with KS-19245L27 power cord.

¶ Order KS-19245L22 and L23 to replace the KS-19245L21 tape deck.

- (7) Remove power cord from ac outlet.
- (8) Check options for proper selection.
- (9) Check that A4, A5, and A6 circuit boards are properly installed.
- (10) Check that cable connecting plugs for power supply and tape deck (Fig. 7) on the interconnect board and the cable connecting plug on the A4 board (Fig. 4) are firmly in place.
- (11) Replace circuit board retainer, left side cover and reinsert ac power cord.

**2.02** When preliminary inspection does not correct trouble, refer to Part 9 and Table B for Trouble Analysis.

**2.03** Perform final test Part 8.

### 3. ADJUSTMENTS



*The only field adjustment on the telephone answering set is to reset the Message Indicator Dial to zero (0).*

#### 3.01 Resetting Message Indicator to 0.

- (1) Manual method (Fig. 3).
  - (a) Remove tape cartridge.
  - (b) Rotate cartridge hub by hand in either direction to set dial to 0.
- (2) Rapid rewind method (Fig. 3).

- (a) Insert folded paper in take-up reel slot.
- (b) Rotate take-up reel by hand to allow folded paper to operate limit switch.
- (c) Plug in power cord.
- (d) Set selector to PLAY.
- (e) Restrain take-up reel and depress cartridge interlock switch.
- (f) Operate REWIND lever until 0 setting is obtained.
- (g) Remove folded paper in take-up reel slot.

#### 4. REPLACEMENT PROCEDURES

**Danger: Remove power cord and telephone connections before attempting repairs on set.**

##### 4.01 Plug-in Circuit Boards (A4, A5, and A6; Fig. 4).

- (1) Remove top cover.
  - (a) Remove two cover retaining screws from left side.
  - (b) Lift left side cover.

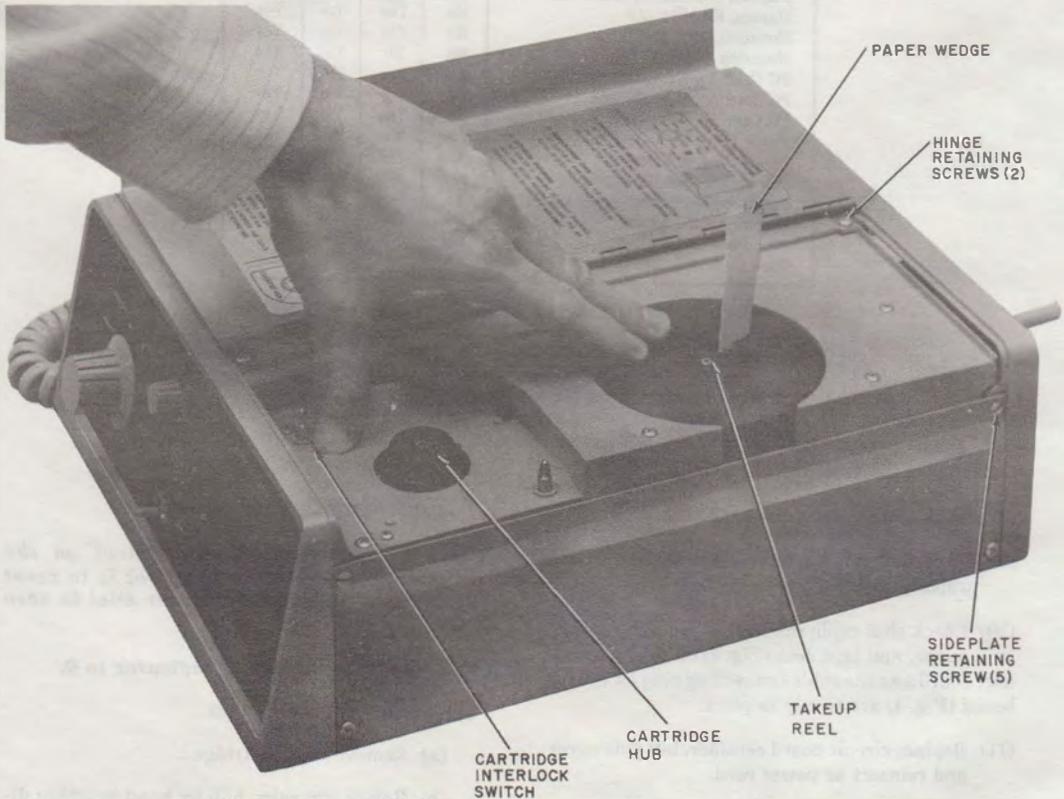


Fig. 3—Resetting "0" Registration on Message Indicator Dial

(2) Remove circuit board retainer.

(3) Remove circuit board.

**Note:** If circuit board A4 is removed disconnect cable connecting plug.

(4) Insert new circuit board into plug-in receptacle.

**Note:** If circuit board A4 is replaced connect cable connecting plug.

(5) Replace circuit board retainer making certain that all circuit boards are in the slots of the

retainer and that index tab of the retainer fits into the slot in tape deck assembly.

(6) Replace top cover and secure with two retaining screws.

#### 4.02 Power Supply Assembly.

(1) Remove top cover (Fig. 4).

(a) Remove two cover retaining screws from left side.

(b) Lift left side of cover and remove circuit board retainer.

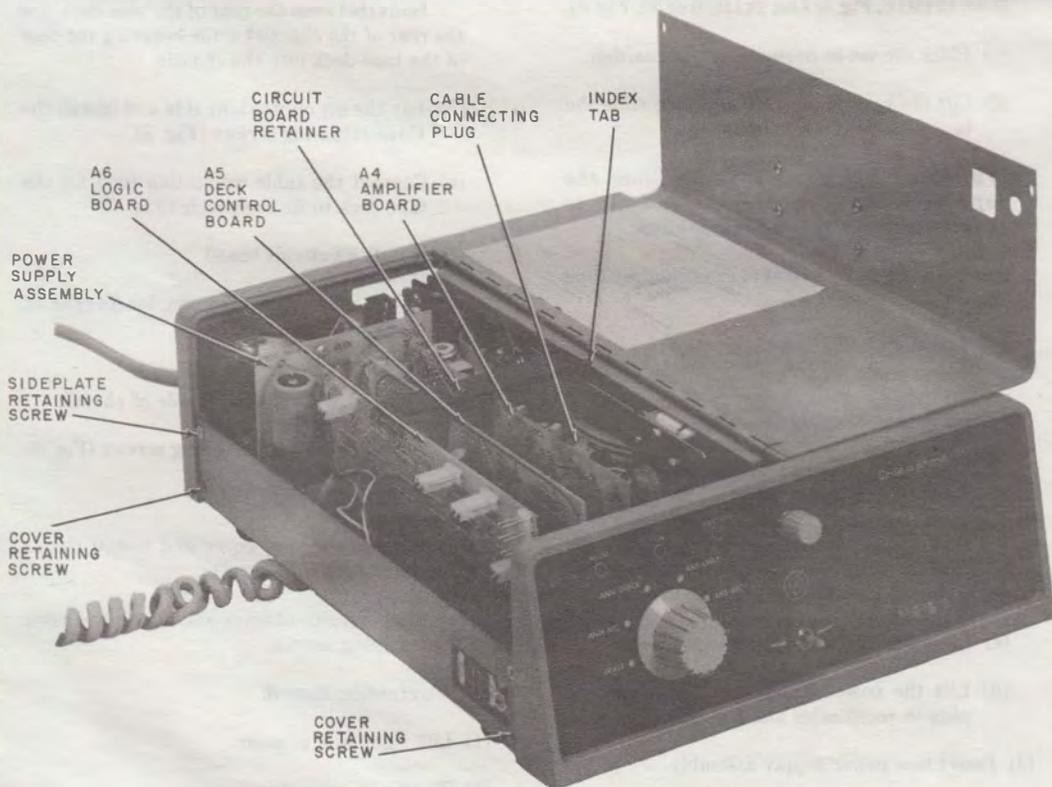


Fig. 4—Top Cover Removed, Internal View of Components

- (c) Lift right side of cover.
  - (d) Remove two hinge retaining screws (Fig. 3).
  - (e) Remove cover and lay aside.
- (2) Remove tape deck.
- (a) Remove cable connecting plug for A4 circuit board (Fig. 4).
  - (b) Remove A4 circuit board.
  - (c) Remove cable connecting plug for tape deck (Fig. 7).
  - (d) Lay the set on its right side and remove the three retaining screws for the tape deck [List 13 (MD), Fig. 5; List 24 (MD) or 26, Fig. 6].
  - (e) Place the set in normal upright position.
  - (f) Lift the rear of the tape deck and slide the tape deck back while lifting up.
- Warning: Use caution in handling the tape deck so as to prevent damage to fragile mechanical subassemblies.**
- (g) Once tape deck is clear of chassis, place tape deck next to chassis.
  - (h) Disconnect the two tape deck assembly power leads (Fig. 7).
- (3) Remove power supply assembly.
- (a) Disconnect the two cable connectors for power supply assembly (Fig. 7).
  - (b) Lay the set on its left side and remove the four retaining screws from the power supply assembly (Fig. 5).
  - (c) Place set in normal upright position.
  - (d) Lift the power supply assembly from its plug-in receptacles and from the chassis.
- (4) Insert new power supply assembly.
- (a) Align power supply assembly with receptacles and push down until firmly seated (Fig. 7).
  - (b) Lay the set on its left side and install the four retaining screws (Fig. 5).
  - (c) Place set in normal upright position.
  - (d) Connect the two cable connecting plugs for power supply assembly (Fig. 7).
- (5) Reinstall tape deck.
- (a) With tape deck resting next to chassis, connect the two tape deck assembly power leads (Fig. 7).
  - (b) Lower the front of the tape deck into the inside front of the chassis until it seats.
  - (c) Use one hand to properly position the power leads (between the rear of the tape deck and the rear of the chassis) while lowering the rear of the tape deck into the chassis.
  - (d) Lay the set on its right side and install the three retaining screws (Fig. 5).
  - (e) Connect the cable connecting plug for the tape deck to its receptacle (Fig. 7).
  - (f) Install A4 circuit board.
  - (g) Install cable connecting plug for A4 (Fig. 4).
- (6) Install cover.
- (a) Lay folded cover on left side of chassis.
  - (b) Install two hinge retaining screws (Fig. 3).
  - (c) Close right side of cover.
  - (d) Open left side of cover and install circuit board retainer (Fig. 4).
  - (e) Close left side of cover and install two cover retaining screws.

#### 4.03 Cartridge, List 6.

- (1) Lift right side of cover.
- (2) To remove cartridge.
  - (a) Rewind tape into cartridge (zero [0] setting on message indicator dial).

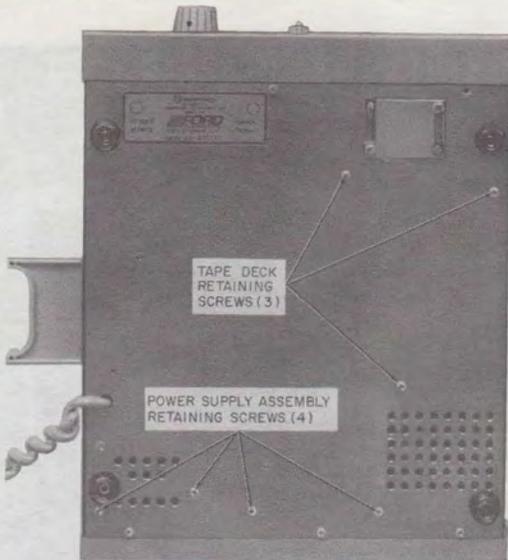


Fig. 5—List 13 (MD) Answering Set, Bottom View

- (b) Set function selector to off.
  - (c) Remove tape from take-up reel by depressing tab on tape and backing tape out of slot. (Refer to Section 514-155-100.)
  - (d) Turn cartridge hub clockwise by hand to rewind remaining tape into cartridge.
  - (e) Grasp cartridge and lift up.
- (3) To install cartridge (Fig. 3).

- (a) Place cartridge over cartridge lock pins and hub, snap down into place.

**Warning:** *Damage to the message tape and answering set will result if the message tape end is not properly secured in the snap retainer of the take-up reel before operating the set.*

- (b) Slide tape end through tape slot into slot of take-up reel and snap into place.

#### 4.04 Broken or Entangled Message Tape.

- (1) Broken or entangled message tape should be replaced with a new KS-19245, List 6 cartridge. If necessary reset message indicator dial to 0 (paragraph 3.01).
- (2) To recover recorded messages on broken tape, splice broken tape ends using splicing tape and tools obtained locally. After splicing tape, message indicator dial should be reset to 0. After messages are recovered tape cartridge should be replaced (paragraph 4.03).

#### 4.05 Handset.

- (a) Remove two cover retaining screws from left side (Fig. 4).
- (b) Lift cover and remove circuit board retainer (Fig. 4).
- (c) Remove A6 circuit board and lay it aside.
- (d) Remove handset connections from TB1 terminal strip.
- (e) Unhook the handset cord from its retainer.
- (f) Pull handset cord out through hole in chassis.
- (g) Pass new handset cord through hole in chassis.
- (h) Hook the handset cord into retainer.
- (i) Make the handset connections on the TB1 terminal strip (Fig. 8).
- (j) Replace the A6 circuit board.
- (k) Replace the circuit board retainer making certain that all circuit boards are in the slots of the retainer and that the index tab of the retainer fits into the slot in the tape deck assembly (Fig. 4).
- (l) Close cover and install two retaining screws (Fig. 4).

#### 5. LUBRICATION

- 5.01 No lubrication of set should be attempted in the field.

#### 6. CLEANING

- 6.01 No internal cleaning of set should be attempted in the field.

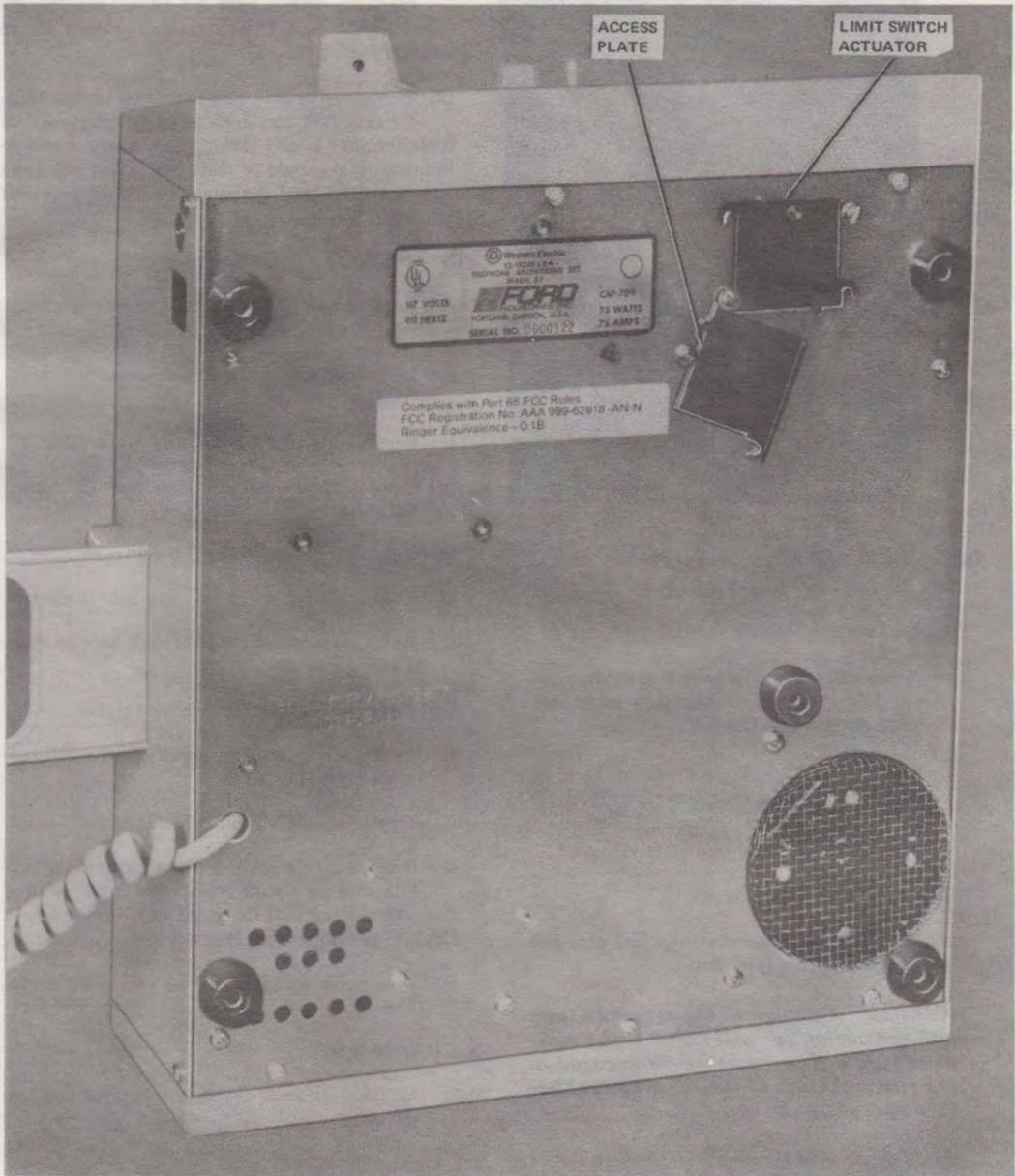


Fig. 6—List 24 (MD) or 26 Answering Set, Bottom View

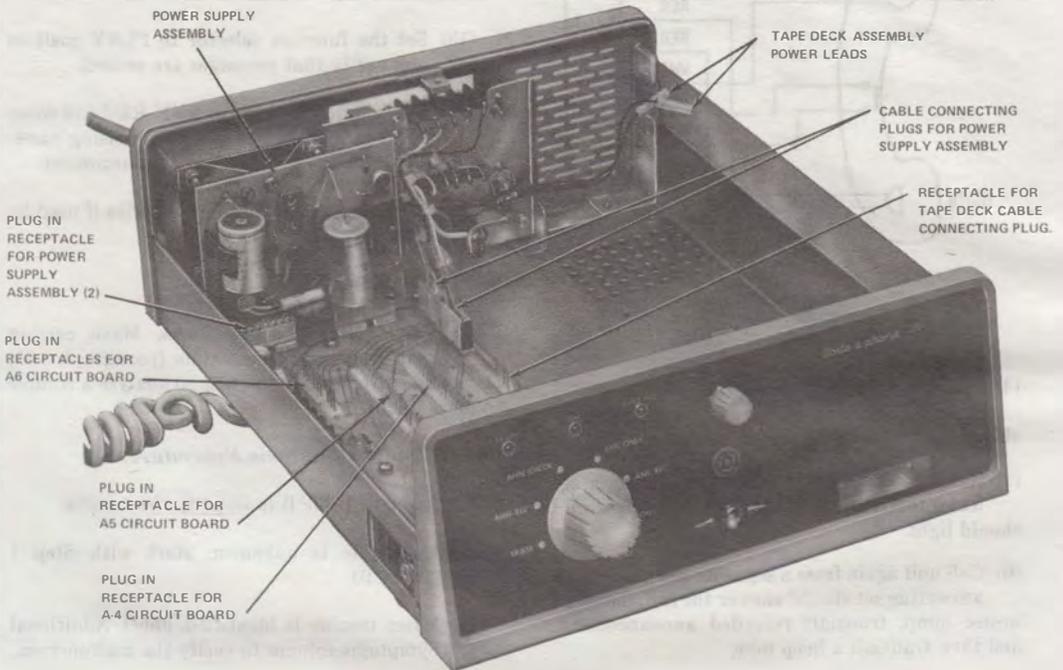


Fig. 7—Top Cover, Circuit Boards and Tape Deck Removed

## 7. ACCESSORIES

7.01 Limit maintenance on footswitch, headset, or backspace unit to correcting loose connections. Replace if defective.

## 8. FINAL TEST

8.01 *Operational Test.*

- (1) Set the function selector to ANN-REC and record a test announcement.
- (2) Set the function selector to ANN-CHECK and play back the announcement using both the handset and speaker.
- (3) Set the function selector to ANS-ONLY position.

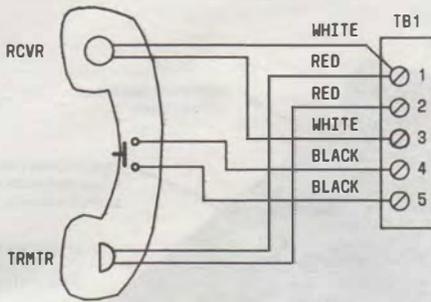


Fig. 8—Handset Connections

- (4) Call the unit from a separate telephone and listen to test announcement, the in-use lamp should light as soon as the set answers.
- (5) Return to answering set and set function selector to ANS-REC position, A AUTO-ANS lamp should light.
- (6) Call unit again from a separate telephone. The answering set should answer the call, light the in-use lamp, transmit recorded announcement, and then transmit a beep tone.
- (7) Dictate a short test message then be silent for approximately 4 seconds. If speak up tone (talk down tone) TDT feature is not disabled, a low level tone should be transmitted. When tone is transmitted start talking again. The tone should stop.
- (8) Be silent for approximately 12 seconds. If voice control feature is not disabled the speak up tone should be followed by a loud disconnect tone and the answering set should disconnect from the line.
- (9) If calling party control (CPC) feature is not disabled, call unit again. Once the set has answered the call, momentarily disconnect the set from the telephone line or apply a short across tip and ring for 1 second. The unit should disconnect.
- (10) Set the function selector to PLAY position and rewind message tape. Play back test message, using both handset and speaker.
- (11) Set the function selector to ERASE position. Operate the fast forward switch until all the

test messages are erased. Operate the rewind switch to bring the tape indicator back to zero.

- (12) Set the function selector to PLAY position and verify that messages are erased.
- (13) Set function selector to ANN-REC and cover handset mouthpiece while depressing handset switch. This will erase test announcement.
- (14) Verify operation of all accessories if used by customer.

## 9. TROUBLE ANALYSIS

**9.01 Preliminary Inspections.** Make certain that preliminary inspection (paragraph 2.01) is carried out before attempting to analyze a trouble in more detail.

### 9.02 Trouble Analysis Procedure.

- (1) Refer to Table B to identify the trouble.
- (2) If trouble is unknown, start with Step 1 (Table B).
- (3) When trouble is identified, check Additional Symptoms column to verify the malfunction.
- (4) Proceed to Remedial Action column and follow the replacement sequence as listed.

**Danger: Disconnect power cord before replacing plug-in units or checking fuse.**

- (5) Each time a plug-in unit is replaced, check operation of the answering set. If trouble is not corrected, continue to replace plug-in units until trouble is corrected.

**Note:** Leave new plug-in units in place as the replacement sequence is followed as more than one unit may be defective.

- (6) If trouble is corrected and if more than one plug-in unit was replaced, reinstall original plug-in units, one-by-one, to further identify good or defective units.
- (7) If trouble was not corrected, replace entire answering set. Reinstall all original plug-in units in the removed answering set before it is returned as unserviceable.

- (8) Insure proper operation of answering set by performing operational test in Part 8.

**TABLE B**  
**TROUBLE ANALYSIS**

STEP	TROUBLE	ADDITIONAL SYMPTOMS	REMEDIAL ACTION
1	Improper effect from use of any front panel control	Improper lighting of AUTO-ANS, or IN-USE lamp	(1) Make certain that tape cartridge is firmly in place (2) Make certain that rewind switch is in center position (3) Replace A5 board (4) Replace A6 board (5) Replace A4 board (6) Replace power supply assembly (7) Replace answering set
2	Line not seized upon ringup	AUTO-ANS lamp does not light	(1) Make certain that tape cartridge is firmly in place (2) Replace A6 board (3) Replace A4 board (4) Replace A5 board (5) Replace power supply assembly (6) Replace answering set
3	Distorted speech or tones	Improper levels for speech or tones	(1) Replace A4 board (2) Replace A5 board (3) Replace A6 board (4) Replace power supply assembly (5) Replace answering set
4	ON lamp does not light when function switch is moved from off position		(1) Check fuse and ac supply (2) Replace power supply assembly (3) Replace answering set
5	Speed of message tape reels is slow or uneven		(1) Replace tape cartridge (2) Replace answering set
6	Only one message tape spool turns		(1) Replace tape cartridge (2) Reset message indicator to zero (See 3.01)